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safer and healthier world

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Petrotech has successfully implemented Kromek's Quant 4 RayMon at several legacy oil and gas sites, supporting sessions of oil drilling asset/site radiological assessments, and controlling NORM debris.

Summary

Petrotech, a product and service provider for the oil and gas industry, benefited from the high sensitivity of our Quant 4 RayMon, identifying and quantifying sources of NORM At several FPSOs. Using the device, the Managing Partner at Petrotech was able to produce comprehensive reports in situ with no need for lab-based analysis.

What's the deal with NORM?

Naturally Occurring Radioactive Materials (NORM) is a common waste by-product of oil and gas production. Radioactive sources such as Radon gas, Radium 226 and Radium 228 can accumulate at several stages and locations in the oil or gas production process[1]. They precipitate as sludge, scale scrapings and other waste materials in pipelines, plants and machinery, which poses many health risks to the public, the environment and workers in the oil and gas industry.

As a result, NORM must be effectively monitored, controlled, and then disposed of, and any contaminated equipment cleaned[2].

Reliable detection and high quality data; it's essential

Reliable detection and high quality data; it's essential Petrotech, a product and service provider for the upstream and downstream oil and gas sector, identified Kromek's Quant 4 RayMon as an optimal solution for NORM identification and monitoring on an offshore production platform.

As the gamma radiation released by NORM is relatively low, the Quant 4 RayMon with its high sensitivity enabled Petrotech to pick up this low radioactivity (<60 KeV).

High resolution detection was also essential to accurately identify all radioisotopes present in the precipitates and waste, as was the ability to take high quality measurements of counts per second (CPS) and dose rate to complete the analysis and build reports on-site.

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Successful identification and removal of NORM

The Quant 4 RayMon has been used effectively in repeated NORM contamination surveys, taking measurements of Radium-226 from the trace pipe to the separator in the well head on an offshore production platform. The distinct footprints of each radioisotope present in the samples taken are clearly displayed on screen in the in situ spectral analysis, informing the appropriate next steps in NORM debris clean-ups.

X marks the spot

One feature in particular of the Quant 4 RayMon stood out to Petrotech as stated by Moses Essiet, Managing Partner, was: 'the products ability to capture the coordinates, graphics, and in situ spectrometry of samples'.

The Quant 4 RayMon outputs a variety of reports, including date, time, user handheld ID, photo, video, audio, GPS, spectra and isotope identification. This has been of great benefit to Petrotech, allowing the location of the survey and identity of the contaminated assets to be recorded with video and GPS coordinates.

The combined features of the Quant 4 RayMon's contamination and dose rate monitoring capabilities were also successfully deployed to pick up the site's radiological contamination and dose rate profile.

Quant 4 RayMon used to complete a drill pipe survey

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Continued safety in the oil and gas sector

With the success of the Quant 4 RayMon on more than eight FPSOs (floating production storage and offloading), six onshore production platforms and three drilling rigs, it is likely its use in routine asset radiological assessments, NORM monitoring, control and clean-up procedures will be proliferated to other facilities associated with mining, drilling oil wells, and other legacy oil and gas sites. It will continue to help safeguard the longevity of machinery and the safety of people and the environment from radiation contamination.

Using the Quant 4 RayMon at a field drilling rig site

Identification, evacuation and treatment of NORM-contaminated drill cuttings

Completing an onsite radiometric analysis

References

1 – NORM (Naturally Occurring Radioactive Material) (texas.gov)

2 – Microsoft Word – IRPA ARGENTINA _FINAL_.doc (iaea.org)